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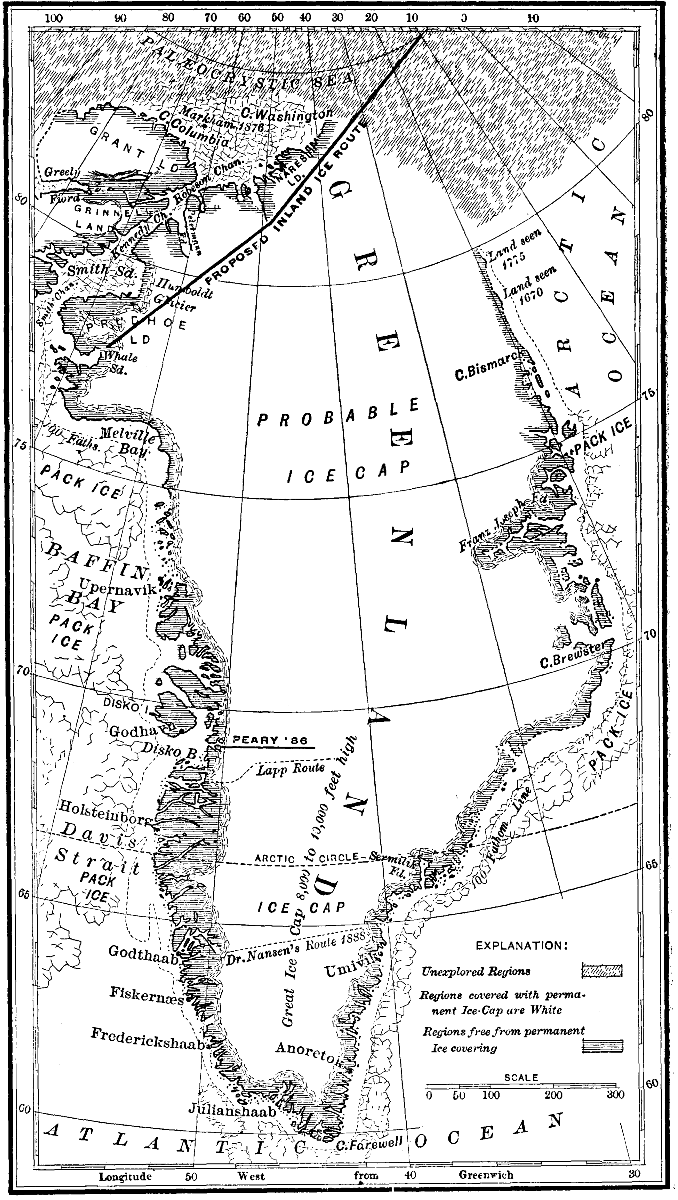
SKETCH-MAP OF GREENLAND

Reduced from the original by J. G. BARTHOLOMEW, F. R. S. E., in the Scottish Geographical Magazine, April, 1890.



A PROPOSED EXPLORATION OF NORTHERN GREENLAND.

An Address before the American Geographical Society, April 13, 1891,

BY

R. E. PEARY, U. S. N.

Mr. President, Ladies and Gentlemen:

The thousand and one little details of preparation for an expedition into a region, where literally nothing can be purchased or found, have so engrossed my attention recently that I have been unable to prepare the finished paper that I should have liked, and that would have been appropriate for this audience.

I hope, however, that I may be able to put before you a correct and realistic picture of the mysterious "Land of Desolation," and to explain to you what I shall attempt to accomplish.

I fancy there is not one in my audience but knows the famous hymn beginning "From Greenland's Icy Mountains," yet I think most of you will be surprised to learn that Greenland has a history, full of events as strange as its own midnight sunshine and far stretching snowfields. Nine hundred years ago, Erik, an Iceland outlaw, discovered the country and named it Greenland, "because," he said, "people would sooner be induced to go thither in case it had a good name." From the colony founded by him, his son Leif and other restless spirits sallied forth to the discovery of the New World.

Centuries after, from these iceberg-haunted seas, went forth a gleaming pile of walrus tusks, tribute for the Crusades.

Then a hostile fleet descended upon the colonies, and ravished away many of the inhabitants to replace those carried off by the plague or "black death" in Europe. Strange anomaly; Greenland repopulating Europe! Finally, the last of the shipmasters who knew the route to Greenland are said to have been assassinated by German merchants to whom they refused to sell their cargoes, and Greenland, in the fifteenth century, dropped out of the world and was absolutely forgotten, before the voyages of Columbus.

A century or more later, Davis rediscovered the "Land of Desolation," but the colonists had disappeared and to-day, though the Danes occupy nearly all the habitable land in Greenland, only scattered ruins of houses and churches have been found, and these are mute as to the mysterious fate of their former inhabitants.

Geographically and topographically, Greenland has been, since the day its black cliffs loomed through the Arctic fog upon the eyes of Erik, a land of mystery, and a source of constantly increasing interest and speculation.

It has been traced further into the *terra incognita* that encompasses the pole than any other land on the globe, and there are reasons for thinking that its unknown Northern headland may be one abutment of a bridge of islands, over which, through years of Arctic summer day and winter night, a portion of our race slowly migrated from Siberia, *via* the Pole, to this hemisphere.

Its interior is the last retreat of that glacial epoch which for ages submerged Northern Europe, and Northern North America, even as far South as the northern part of this State, in its icy flood. Its shores are famous with the names of Americans, who have dragged its sable headlands and icy bays out of the Arctic fog and night.

From Cape Farewell, its southern extremity, in the same latitude as Christiania, St. Petersburg and Mount St. Elias, to Cape Washington, its northernmost known limit in lat. 83° 38′ N., the distance is fifty miles greater than the extreme width of the United States from the mouth of the Rio Grande to the 49th parallel. It is probable, however, that its northern limit is near to or within the 85th parallel, in which case its extreme length is some 1,739 statute miles, about the same as the air-line distance from Washington to the City of Mexico. From Cape Hatherton, its most westerly, to Cape Bismarck, its most easterly known limit, is 690 miles. Its area is from 740,000 to 750,000 square miles, about the same as that of Mexico, and four times the area of the New England and Middle States. No less than four-fifths of this area, or 600,000 square miles, equivalent to three times the area of France or the German Empire, and thirteen times the area of Pennsylvania, is covered by the inland ice.

The population of the country is about 10,000, of whom between two and three hundred are Europeans, and the Danish Crown supports a fleet of six or eight vessels, and clears some ten thousand dollars annually from the sale of the blubber, eiderdown, ivory and furs obtained in Greenland.

The coast is bold and mountainous, cut by numerous deep fjords, and protected by an advanced guard of outlying rocky islands. Some of these fjords extend inland a distance of sixty or eighty miles, and many of them are the outlets of great glacier streams from the Inland ice.

There is not a bridge nor a road, a carriage, nor a horse, nor a cow, in the country.

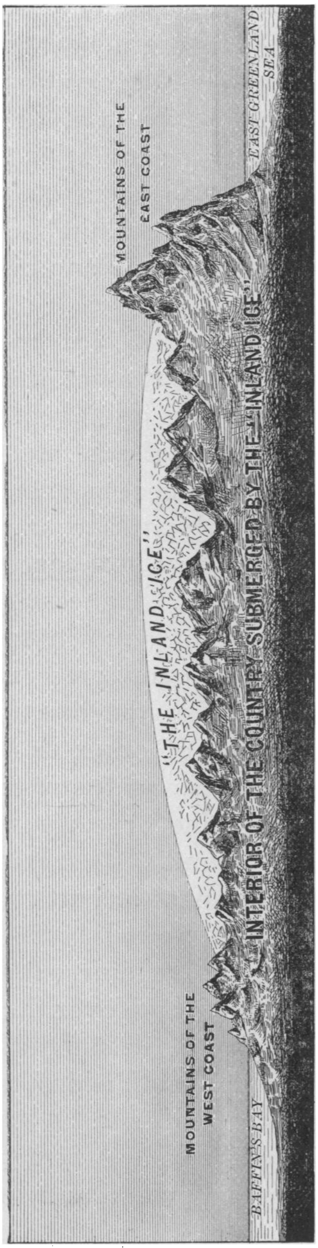
A skin-boat in summer, and a dog-sledge in winter are the sole means of travel. But it is in the character of its interior that Greenland differs from every other known land, and it is in this interior that the chief interest centres.

As far back as 1728 an expedition which attempted to cross from one of the southern settlements on the west coast of Greenland, to the east coast, encountered an impassable ice desert, and during the next one hundred and fifty years it was discovered that throughout the entire known circumference of Greenland there existed, at a distance from the coast varying from ten to eighty miles, an unbroken wall of ice, and enormous glaciers.

As late as 1883, it was believed by some, most prominent among whom was Baron Nordenskiöld, that this icy barrier was comparatively narrow, and that within it lay an ice-free and fertile interior.

His expedition into the interior in 1883 changed his views entirely, and his experiences, together with my own in 1886 farther north, and Dr. Nansen's in 1888 farther south, show conclusively that the entire interior is submerged by ice.

Now picture to yourselves an irregular ribbon of bare



TRANSVERSE PROFILE OF GREENLAND FROM WEST TO EAST.

ragged mountains, valleys, and branching fjords, covered with snow in winter but free in summer, and rich with greens, and reds and browns, which warm up wonderfully in the brilliant yellow sunlight of the long Arctic day. Then imagine this ribbon surrounding an interior entirely buried in snow and ice, the accumulated precipitation of centuries, not, however, as the Adirondacks or White Mountains might be in the depth of an exceptionally severe winter, but literally submerged till every topographical feature is completely obliterated.

Greenland is in fact but a Titanic mountain dam holding in check a mighty sea of ice. Where there are breaks in the dam, the ice pours through in a resistless glacier torrent and descends to the sea. Where there are shallow notches in the crest of the dam, the ice flows through and hangs suspended in frozen aerial cataracts.

Four years ago last summer, drawn by the loadstone of desire to penetrate this frozen sea, I made a voyage to Greenland, to satisfy myself by personal observation as to the conditions of its unknown interior, and the proper travelling equipment to meet those conditions.

With one companion, dragging our provisions and sleeping gear on sledges, I penetrated over a hundred miles into the great glacial desert, and attained an altitude of 7,500 feet above the sea.

I returned from my tramp on the Inland ice impressed with the idea that the imperial highway of the interior offers to a party of two or three intelligent, resolute men, properly equipped, the means of determining, in the quickest, safest and most economical manner, the northern limit of Greenland and the position and contour of its undiscovered coasts. Every year since has but strengthened me in my convictions.

Now in a few weeks I expect to be on my way to prove or disprove my theories. In outline my project, which has met the approval, not only of the distinguished geographers of the Society, but of other eminent geographical and scientific experts, is as follows :

The party, of five or six, to land in June or early in July, at or near the mouth of Whale Sound.

The remainder of the summer to be spent in putting up a house on the north side of Whale Sound, laying in a store of meat, getting everything in readiness for the winter, making a reconnoissance northward over the "Inland ice" to the southern angle of Humboldt Glacier, and, if the season be favorable, establishing a depot of supplies in the vicinity of the glacier.

The winter to be occupied in making and fitting sledges, clothing, and all travelling equipment, and in snowshoe and "skier" practice, for which the level surface of Inglefield Gulf (head of Whale Sound) is especially adapted.

Early in the spring, four or five of the party to start overland across the "Inland ice" to Humboldt Glacier, with all the sledges and dogs, leaving one man in charge of the house.

If the travelling and the weather be favorable, the sledge party will go on from Humboldt Glacier to the head of Petermann Fjord (90 naut. miles). Here a depot will be established, and two or three of the party, with their dogs and sledges and a full supply of provisions, will proceed ; the remaining man or men, with the empty sledges and extra dogs, returning to Whale Sound, where they, with the one left in charge of the house, will utilize their time in hunting for the winter's supply of meat, collecting specimens, making meteorological observations, and surveying.

The sledge party will proceed from the head of Petermann Fjord to the head of Sherard Osborn Fjord (120 naut. miles), establish a depot there, then to the head of Meigs Fjord (110 naut. miles), establish a depot there, thence to the northern terminus of Greenland (100 to 200 miles).

This point reached and determined, the party would retrace its steps to Whale Sound, taking up the various depots, and take the first opportunity to return home.

PERSONNEL OF PARTY.

This to consist of five or six persons, viz. : Chief, Assistant, Doctor, and two or three others ; all young, hardy and active.

In Arctic work every increase in the party beyond the number absolutely essential is an element of danger and failure. This essential number (of white men), for a main advance party, may be put at two or three, and for a complete main advance and supporting party at five or six.

The explorations of the Greely Expedition were all made by three-men parties.

Schwatka's great sledge journey was made with a party of four white men.

Payer in his sledge journey in Franz Joseph Land started with a party of seven, but found this number only a hindrance, and, leaving four, pushed ahead with two companions.

Nansen's party numbered six.

My own party only two.

Holm's party to the east coast of Greenland numbered four.

Hall's earlier explorations, and Graah's journey along the east coast of Greenland, are striking examples of the success that may attend the efforts of *one* resolute man in Arctic exploration.

PROVISIONS AND EQUIPMENT.

Provisions and equipment for two years will be selected and designed with the utmost care and judgment that my own experience, combined with several years' careful study of the records of Arctic explorations, will permit.

PRACTICABILITY OF THE PROJECT.

The results of the various attempts to explore inner Greenland, leave little or no room to doubt that the entire interior is completely submerged beneath the accumulated frozen precipitation of ages, which, surrounded and confined by the Titan dam of the coast mountains, forms an immense congealed reservoir, the like of which exists nowhere else upon the globe.

The area of this reservoir is about thirteen times as great as the State of Pennsylvania, and its surface, rising gradually from the edges, attains in the centre an elevation of 9,000 to 10,000 feet above the sea level.

The experiences of those explorers, who have succeeded in penetrating any distance over this frozen sea, show, that while its borders for a width of from ten to forty miles (depending upon the season, the latitude and the elevation), may be of almost impassable roughness, interrupted by huge crevasses, and traversed by rushing glacier rivers, its central portion is covered by a layer of fine dry snow, gradually increasing in depth toward the centre.

To most, if not all previous explorers, this deep dry snow has been a *bête noire*, but I will ask you to accept my statement, which I make as the result of some experience both in boyhood and in later years, that to a properly equipped expert it is the perfection of roads, and offers fewer uncertainties of travel than any other surface known to me.

To a physically perfect, resolute, hardy man, at home on snowshoes and "skier," and specially equipped, this snow covering of the Inland ice presents a field from which almost every one of the elements of uncertainty, that have hitherto made success in Arctic travelling argely a matter of luck, is eliminated.

To keep this paper within as brief limits as possible, I will ask you also to accept my simple statement that, given a choice of latitude, of elevation, or of season, there is no considerable distance along the border of the Inland ice in North Greenland, in which there is not some place, where a party may step from the mountain summits directly upon the dry unbroken snow surface, and advance into the interior, without seeing a crevasse, an ice hummock, or a glacier stream.

The question of practicability then figures down to the average rate of daily advance which may be reasonably counted upon, and the possibility of carrying provisions for the time, which, at such rate of advance, will be consumed in covering the total distance.

From fifteen to twenty miles per day I believe to be a conservative estimate of average daily advance over the "Inland ice."

In 1874 Payer for 27 days averaged 11.85 miles per day, over the ice of the Franz Joseph Fjords.

In 1882 Greely for 12 days averaged 20½ miles per day, in the interior of Grinnell Land.

In 1883 Lockwood for 57 days averaged 18.76 miles per day, along the North Greenland coast.

In 1884 Lockwood for 31 days averaged 14 miles per day, across Grinnell Land. During several marches on a lake, over which the travelling may be considered as almost identical with "Inland ice" travel, he made 21 to 26 miles in 6 to 7½ hours, an average of 3½ miles per hour.

Dr. Rae for 22 days averaged 27.27 miles per day, across the Hudson Bay region.

The average of all these averages is 18.48 miles per day.

So much for speed ; now as to time.

Lockwood's party was out 57 days.

Hayes' party was out 60 days.

The parties of Aldrich and Beaumont were out over 70 days each.

These are the records of travel over rough sea ice, or the broken rocky surface of ice-free Arctic land, and a party on the Inland ice could hardly fail to materially better these results.

Assume the speed, however, to be the same as the above average (18.48 miles per day).

If we suppose the northern terminus of Greenland to be near the intersection of the 85th parallel and the 10th meridian (W. of Greenwich), and I think there is much more probability of its being in a lower rather than a higher latitude, the total distance from the south side of Humboldt Glacier to the terminus, and return, is about 1,064 nautical, or 1,219 statute miles. A simple sum in division gives 66 days as the time required to traverse this distance.

SPECIAL ADVANTAGES.

These are : The possibility of laying a straight course from point to point, with the certainty that no tidal crack or chaos of heaped up ice will compel a long detour, or stop all further advance ; that every foot travelled is a foot advanced, and the comforting assurance that nothing can happen to cut off the retreat.

The even and unvarying character of the surface to be traversed, and the gain in lightness of sledges and equipment, and rapidity of advance, resulting therefrom.

The length of the season (at least six months) during which sledging may be prosecuted.

The facilities that the "Nunataks" or island mountain tops, which in Middle and South Greenland (and also without doubt in North Greenland), project above the "Inland ice" at distances varying from two or three to forty miles from the edge of the ice, offer for forming depots of provisions. Depots placed on these "Nunataks" are safe from the attacks of bears or other animals, and the "Nunatak" itself forms a prominent landmark, by which to recover the depot.

The exceptional value of the elevation of the route in accurately charting the coast and detecting the existence of more northerly land or lands. From the heights of the ice cap, with miles of the coast lying like a map below, as I have seen the entire circuit of Disco Bay, and at another time Noursoak Peninsula, Omenak Fjord, and Svarten Huk Peninsula, the coast can be charted with an accuracy and rapidity unknown to one toiling from headland to headland along the seashore.

The one disadvantage of this route, which, however, it shares with all Arctic routes, lies in the storms, and against the fury of these a pit in the snow affords shelter and is always available.

Once the idea is grasped of exploring Greenland from the *inside*, from the smooth, serene heights of the interior ice, instead of from the outside, through grinding ice fields or along a ragged coast, it will be seen how simple and easy it is.

It is like exploring an atoll around the margin of the placid central lagoon, instead of along the outer shore through reefs and breakers.

RESULTS TO BE ANTICIPATED.

The solution of a geographical problem (viz. : the northern extension of Greenland) second in importance only to the discovery of the North Pole.

The possible discovery of the most practicable route to the Pole.

The certainty of important additions to our knowledge of the geography, geology, glaciation, ethnography, meteorology, and natural history of the Arctic regions.

Let me note the salient points of my project. My base is the one advocated by Kane, Hayes, Hall, the distinguished President of this Society, and almost every American authority on Arctic exploration ; a region having a small and kindly native population, with abundance of game, and within easy reach of the whalers which pass Cape York every year, on their way to the fishing grounds in Lancaster Sound and the adjacent waters.

My line of advance is absolutely direct throughout each 100 to 200 mile section. If it were not desirable to touch at the heads of Petermann, Sherard Osborn, and the other principal fjords, which interrupt the Northern Coast, and determine their length and the characteristics of their heads, the line of march might follow very closely the arc of a great circle from the head of Whale Sound to beyond Lockwood's farthest.

The following will, I think, bring home to every one the directness of my proposed route. Lockwood, in attaining his " farthest " from Fort Conger, and return, travelled 1,069¾ (Greely's Report, vol. 1) statute miles. The distance from the head of Whale Sound *via* the Inland ice to the "farthest," and return, is 1,028 statute miles. As to the obstacles and difficulties of travelling on the two routes there is no comparison.

The smallness of the party I also consider a vital element of my project. With the small party, the unbroken snow for a road, the never-to-be-foreseen vagaries of Arctic seas, and Polar ice-floes eliminated, and the entire Arctic summer in which to travel, I believe that all contingencies in my plan are as completely within the scope of experience and careful prevision, as those of a winter journey across our own prairies ; and I am confident that success is almost certain.

Many have spoken to me of the dangers of the trip, my rashness in undertaking it, and the uncertainty of my return.

As a matter of fact I consider that there is no danger whatever in the project.

There are now in Northern Greenland, under climatic conditions and environment similar to those of my proposed headquarters, Danish officers with their wives and families, living the same home life as the better classes here, with their window gardens, their music, their books, and all the other accessories of culture and refinement.

Were it not that the ice makes the navigation of Melville Bay in some seasons uncertain for a sailing vessel, there would be one or more of these families near the proposed site of my headquarters.

The only element of hardship for my party will be the exposure to cold, and for a healthy, well-clothed, and well-fed man, I consider this as nothing more than a physical annoyance, not a danger.

Risks of the sea are eliminated in my project, savages, wild beasts, poisonous reptiles and vermin there are none ; fever and malaria are unknown.

I want you to divest yourselves of the popular conception of the Arctic regions in general and Greenland in particular, as a place where eternal snow, overpowering cold, and Cimmerian darkness hold unbroken sway throughout the year, and where the unavoidable fate of any poor mortal is, sooner or later, to drop into the snow benumbed and starving.

The brilliancy and teeming life of the Arctic summer, during which my work will be done, is equalled nowhere else on the globe, and as for the dangers and hardships of an eighteen months' sojourn, where I propose to go, they are no greater, sentiment and imagination put aside, than in Northern Norway, in Siberia, in the higher Alps, or, to come nearer home, than those experienced every winter by the Dakota and Montana farmers and their families.

R. E. PEARY.

JOURNEYS ON THE INLAND ICE.

The pages that follow, most of them taken, and often in his own words, from Dr. Nansen's "The First Crossing of Greenland," Chapter XVI., are added to give to the readers of Mr. Peary's paper a comprehensive view of what is known concerning the Inland ice of Greenland. The responsibility for this abstract, as well as for the observations and notes which occur in the course of it, is sufficiently indicated by the initials at the close of the paper.